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New Jersey Chapter

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NOVEMBER 2013

President's Message...

Unfortunately the partial government shut down forced us to cancel our October field trip. The folks at Electric Boat were anxious to help us reschedule once they 'reopened'. But that just didn't work for many of us so we'll try to have this trip next year. Thanks to Nate and Vicki for all their work making the arrangements and trying to reschedule.

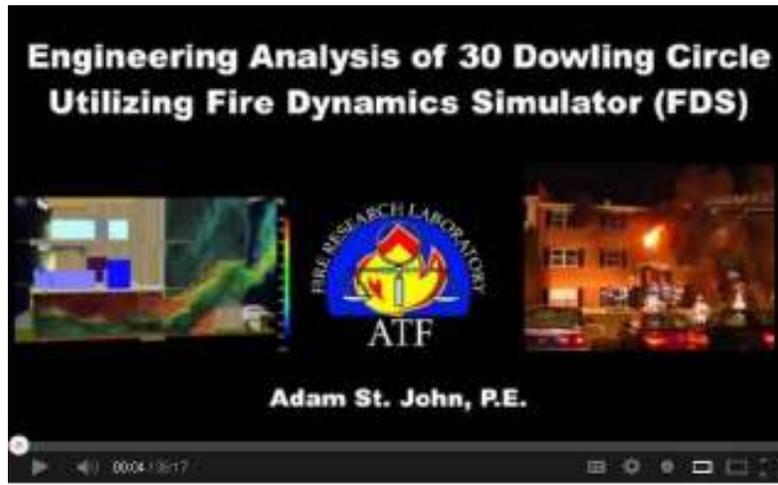
The SFPE's annual meeting will be held in Austin, TX during the last week of October. This is not just the Societies business meeting, at this meeting many award winning researchers make presentations about their work and our industry along with the other educational seminars the Society offers throughout the year. A couple of Chapter members will be attending and we will present a donation to the Education and Scientific Foundation from the Chapter. We'll share some details with you at the November Chapter meeting.

I will be filling in as speaker at our November 4th meeting. I am sorting through some videos of recent FM Global fire tests, and sprinkler system technology issues which I think you will find informative and will spark some good conversation between us. I'm looking forward to seeing you on November 4.

Joe Janiga
President, NJ Chapter SFPE

Fire Protection Engineering Analysis of Firefighter Line-of-Duty-Death in Baltimore County Maryland

Posted: 26 Aug 2013 09:03 AM PDT



Guest Blog Post by Adam St. John SFPE Fire Service Committee member and ATF Fire Protection Engineer

The United States Bureau of Alcohol, Tobacco, Firearms and Explosives (**ATF**) worked with the Baltimore County Fire Department to create a detailed Fire Dynamics Simulator computer model of the fire that resulted in the Line of Duty Death of FF Mark Falkenhan on January 19th, 2011. The 36 minute video details the entire incident, beginning with the 911 call and ending after the firefighter MAYDAY.

Several alternative fire modeling scenarios were also included as part of the engineering analysis and are included in the video. The purpose of the alternative fire modeling runs were to explore how the buoyancy driven ventilation flows paths through the apartment building would differ if apartment entrance doors were shut during suppression/search efforts. The video is intended to be used as an educational tool that provides insight on potential methods for preventing similar tragedies in the future.

The video and corresponding flowpath presentation has been formally presented to members of the fire service on over 30 separate occasions and is now incorporated into class curriculums at the National Fire Academy.

The following three conclusions result from the analysis:

1. Unidirectional flow of 600 degree Fahrenheit gases in excess of 6 mph up the stairs resulted in a high rate of convective heat transfer to the firefighters, making initial fire attack down the stairs very difficult.
2. The open apartment entry doors allowed the main stairwell to act as an open channel for fire and smoke spread between the 2nd and 3rd levels, resulting in flashover of the 3rd floor approximately 30 seconds after the 2nd level.
3. The model supported the scene observations and indicated that shutting the entrance doors blocked the flow of buoyancy driven fire gases, ultimately preventing fire extension to the 3rd level apartment via the stairwell.

The video was recently posted to the Society of Fire Protection Engineers (SFPE) **Fire Service Committee's** YouTube channel where it has over 3,000 views. The video can be viewed here: <http://youtu.be/idhoLzAE14s>.

Bangladesh Factory Workers Killed in Blaze

The Associated Press
Created: October 9, 2013



DHAKA, Bangladesh (AP) — A fire killed 10 people at a garment factory in Bangladesh about six months after a factory building collapse that killed 1,100 people exposed the harsh and often unsafe conditions in an industry that is the world's third-largest.

Authorities and global clothing companies have pledged to improve safety standards in Bangladesh's garment industry after the Rana Plaza collapse and numerous other fatal accidents.

The cause of the fire at the Aswad garment factory in Gazipur outside Dhaka was not immediately known, but the government was investigating.

The fatalities included the general manager, Rashiduzzaman Mandal, said fire official Zafar Ahmed. He said the fire was doused early Wednesday after firefighters labored 10 hours to bring it under control.

Factory director Emdad Hossain said 170 workers were inside the factory when the fire started and most were able to escape. Hossain said he suffered slight injuries himself.

Farhaduzzaman, another fire official, said the fire spread to two buildings that housed garment factories belonging to the Palmal Group of Industries.

Another garment factory fire last November killed 112 workers in a building authorities said did not have enough exits.

Bangladesh earns \$20 billion a year from garment exports, mainly to the United States and Europe. The sector employs about 4 million workers, mostly women.

An engineering survey shown to The Associated Press after the Rana Plaza collapse showed many Bangladesh garment factories added floors that the building foundations couldn't support and were located in converted residential buildings not designed to withstand use of heavy equipment.



Coffee Break Training - Fire Protection Series

Fire Pumps: Cavitation

No. FP-2013- 34 August 20, 2013

Learning Objective: *The student will learn the signs and consequences of cavitation in fire pumps*

Fire pumps are an essential part of many fire protection systems. They are, however, vulnerable to damage when certain conditions occur in the water supply.

Water emits a vapor over its surface, which produces a certain amount of pressure. This vapor pressure increases as the liquid temperature rises. Water boils when the vapor pressure is equal to or greater than the pressure surrounding the liquid. Vapor pressure is important because of the way it affects pump operation.

Pumps are designed to operate within a given speed range and under a specific set of intake conditions. Operating a pump at excessive speed or at too high an intake lift (from a static water source), restricting the intake, or any other factor that causes the pressure on the water to fall below its normal vapor pressure produces a condition called cavitation. When cavitation occurs, the water vapor released in the low-pressure regions of the pump forms bubbles. These bubbles are carried into the high-pressure sections of the impeller where they collapse with considerable force. This may cause pitting near the impeller surfaces.

Noise is one of the early indications that a centrifugal pump is cavitating. A cavitating pump may sound like a can of marbles being shaken. Other indications that can be observed from a remote operating station are a sudden pressure or capacity loss, fluctuating discharge pressure or flow rate, or an increasing pump speed without corresponding increase in volume or pressure.

Damage signs of general cavitation are on the low-pressure area of the impeller vane. These signs are always characterized as being rough, sometimes jagged with striations running in any direction. Cavitation also causes corrosion, pitting and abrasion. Prolonged exposure to cavitation can form pitting in different parts of the pump.

Cavitation in a centrifugal pump has a significant effect on pump performance. Cavitation degrades the performance of a pump, resulting in a fluctuating flow rate and discharge pressure. Cavitation can also be destructive to a pump's internal components; it can cause excessive pump vibration or overheating, which could damage pump bearings, wearing rings, and seals.

If cavitation or other damage is suspected, the fire pump assembly should be checked by qualified maintenance personnel, and repairs, if needed, should be made promptly. If the fire pump is out of service for an extended period of time, an impairment plan should be implemented. (See Coffee Break Training 2006-12, for impairment guidance, at <http://1.usa.gov/16xO60m>.)



A fire pump service technician inspects the exposed vane for evidence of cavitation. (Photo courtesy of Keith Heckler, Rockville Fire Department, Maryland)

Fire Barrier Foam

Product Code: FIP 1-Step

Manufacturer: 3M Corporate Communications



3M Fire Protection Products introduces 3M FIP 1-Step Firestop Foam, a breakthrough technology that is UL tested and listed and satisfies the International Building Code for passive fire protection. 3M FIP 1-Step gives contractors an outstanding alternative to mineral wool, bricks and runny, ineffective foams, and enables firestop installations to be completed up to three times faster than traditional methods.

3M Firestop Barrier Rated Foam FIP 1-Step is like no other firestop foam. With a non-runny formula, the foam stays in place and expands consistently—up to five times. The foam is similar to many two-part epoxy sealants, but its one-step application means that trips up and down the ladder are reduced. As 3M FIP 1-Step expands, it creates a seal around cables, conduit and cable trays, so complex installations can be tackled fast, with less clean up. It can be installed in both vertical and horizontal applications without running or sagging. Contractors who have struggled with irritating mineral wool, bricks and caulk will appreciate the simple installation, and some installations can even be completed from just one side of the opening.

With these ease-of-use advantages, 3M FIP 1-Step helps save time and money – in fact, the more complex the opening the greater potential for savings. 3M FIP 1-Step is also easier on a contractor's administrative team as well, with less product to order, keep inventory on, and move between sites.

3M Fire Barrier Foam FIP 1-Step is UL tested and listed for a broad range of applications and meets the International Building Code for passive fire protection. To meet these standards, the foam passed rigorous testing, including the ASTM E 814 fire test with the difficult "hose stream" test.



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MEETING NOTICE

- Date:** November 4, 2013
- Place:** Hanover Manor
16 Eagle Rock Avenue
East Hanover, NJ 07936
- Price:** \$30.00
- Dinner:** 5:00-6:00 (Cash bar for mixed drinks)
Dinner at 6 PM
- Topic:** Joe Janiga will present several short topics on various aspects of sprinklers, pipe, fire pumps, a developing occupancy hazard that is likely to be prevalent in our region, a brief useful loss discussion and one or two fire test videos of some of FM Global's recent research
- Speaker:** Joe Janiga, FM Global

PLEASE COMPLETE AND RETURN WITH YOUR CHECK PAYABLE TO "SFPE NJ CHAPTER" TO:

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OR PAY AT THE DOOR

NAME: _____

COMPANY: _____ TELEPHONE: _____

Meeting Dates/Programs 2013-2014

Nov. 4	Topic: Joe Janiga will present several short topics on various aspects of sprinklers, pipe, fire pumps, a developing occupancy hazard that is likely to be prevalent in our region, a brief useful loss discussion and one or two fire test videos of some of FM Global's recent research.
Dec. 9	Topic: Special Inspections by John Stoppi of AMAA Co.
Jan. 6	Topic: NYC Resiliency by Rich Leentjes of FM Global
Feb. 3	Forensic Loss Investigations by RJA - Speaker to be announced
March 3	Aerosol Storage Suppression by Anthony Gee—Company to be provided later
April 17	Chapter Seminar
May 5	NOVEC Fire Suppression Agent Update—Larry Lussier, 3M
June 2	TBD
June	Joint NY/NJ Chapter Golf Outing – details and date to follow

JMCC

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Paul McGrath

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Jim Tolos

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Jim Tolos

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Ana Crisostomo—Coordinator

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NY Chapter for 2014

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HELPFUL LINKS

ADAAG <http://www.access-board.gov/adaag/about/index.htm>

AFAA National <http://www.affaa.org/>

AFAA <http://www.afaa.org/>

ANSI <http://web.ansi.org/>

ASHRAE <http://www.ashrae.org/>

Campus-Firewatch <http://www.campus-firewatch.com/>

Coffee Break Training <http://www.usfa.dhs.gov/nfa/coffee-break/>

CPSC <http://www.cpsc.gov/>

CSAA <http://www.csaaul.org/>

Municipal Codes (E Codes) <http://www.generalcode.com/Webcode2.html>

FDNY <http://nyc.gov/html/fdny/html/home2.shtml>

FM Global <http://www.fmglobal.com/>

FSDANY <http://www.fsdany.org/regs.htm>

FSI <http://www.firesprinklerinitiative.org/>

FSSA <http://www.fssa.net/>

Fire Tech Productions—Nicet Training (FTP) <http://www.firetech.com/>

Home Fire Spklr Coalition <http://www.homefiresprinkler.org/>

HVAC Bld. Control Fire Safety <http://www.iklimnet.com/hotelfires/hotelfiresmain.html>

AFAA-NJ <http://www.afaanj.org/>

International Code Council - <http://www.iccsafe.org/>

International Code Council Residential Sprinkler Exam - http://www.iccsafe.org/news/nr/2009/0709_ResidentialSprinklerExam.pdf

The Joint Commission (JCAHO) - <http://www.jointcommission.org/www.JointCommission.org/>

Material safety data Sheets (MSDS-OSHA Site) - <http://www.osha.gov/SLTC/hazardcommunications/index.html>

National of Fire Equipment Distributors (NAFED) - <http://www.nafed.org/index.cfm>

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